Chapter 1

This chapter was mostly terms so expect a fill in the blank style questions on definition. Remember look for those red, italics, bold, underlined words from the first slides. Here are a some definitions that may be on the exam.

1. A _____ is a digit with a value of either 0 or 1.
2. A _____ consists of 8 bits.
3. Each byte in main memory resides at a numbered location called its _____.
4. A _____ is a set of instructions for a computer to follow.
5. A _____ translates a program from a high-level language to a low-level language the computer can run.
6. A _____ is a library of classes that have been defined already. Such as **import java.util.Scanner;**
7. A _____ is used to store data such as number and characters, and has a type and a name associated with it.
8. Java translates a program into _____ before compiling it to machine code.
9. A Java program typically consists of several pieces of code called _____.
10. An _____ is a well defined set of instructions for solving a problem.
11. Algorithms usually are expressed in English or in _____.
12. The grammar rules for a programming language are called the _____ of the language.
13. The three types of errors are _____, _____, and _____.
14. The place where the computer starts a running instructions is called the _____ _____. In java it is
    ```
    public static void main(String[] args)
    {
          //Starts here!
    }
    ```
15. An instruction to the computer is called a _____, and it ends with a semicolon (;).
16. Java, C#, C++, Visual Basic, Python, Ruby are all examples of _____ languages, which is easier to write and understand than machine code or assembly.

Chapter 2

This chapter was solely on variables. You may expect terminology, short answer, and programming, but probably not all 3.

Terminology Questions
1. When you _____ a variable, you provide its name and type.
2. A _____ is used for simple, non-decomposable values such as an individual number or individual character. Like (int, double, char)
3. A _____ is used for a class of objects and has both data and methods. Like (String, Scanner, Random)
4. _____ a variable is where you assign the variable a value before it is ever used. This is good programming practice as it doesn't rely on a default value.

5. An _____ is a name, such as the name of a variable.
6. The equals sign (=) is called the _____.
7. Words such as **if** are called _____ **or** _____ and have special, predefined.
8. Uninitialized primitive variables may have a _____.

Short Answer Questions – These questions are more conceptual and could be true-or-false questions with a short explanation, or write what the program snippet will print out. Also you can expect a question on the **mod(%)** operator.

1. Will this programming snippet give an error? True or False? If this does cause an error then why?

```
String value1 = "34.0";
int value2 = value1;
```

2. What will this program print out?

```
int number = 20%7
System.out.println(number);
```

Programming Questions – These questions will be very similar to the lab assignments or the homework.

1. Write a program that prompts the user for a number which corresponds to degrees and change that number into radians. Then prints both the input and result. This conversion is rad = deg x 3.14159/180.0. Also assume that the input and the result are both double.

```
import java.util.Scanner;
public static void main (String[] args) {
   Scanner keyboard = new Scanner(System.in);
   //Put your code here




}
```

Chapter 3
This chapter dealt with branch statements: if, else if, else, and switch. Not much terminology is here so there will be questions mainly on short answer and possibly programming. Expect a conversion from either switch to if, else if, else or the other way around.

Short Answer Questions
1. When this program is executed what will it print out

```
int number = 10;
if (number < 5) {
   System.out.println( "A" );
}
else if (number < 100 && number > 5) {
   System.out.println("B");
}
else if (number < 20) {
   System.out.println("C");
}
else {
   System.out.println("D");
}
if (number > 1 || number <=5) {
   System.out.println("E");
}
else if (number > 2 && number <= 40) {
   System.out.println("F");
}
else {
   System.out.println("G");
}
```

2. Convert this if, else if, else into a switch statement

```
if (n == 0)
{
   System.out.println("0");
}
else if (n == 1)
{
   System.out.println("1");
}
else
{
   System.out.println("?");
}
```

Programming Questions
If I do put one of these expect something along the same lines as labs, homeworks, or examples

1. Write a program where the user enters an integer and the program checks whether or not it is between 0 and 255 (both inclusive so it can be 0 and 255). If it is then the number is valid and the program will say that the number entered is valid. Otherwise it will prompt the user that they have entered an invalid number.

```
import java.util.Scanner;
public static void main (String[] args) {
   Scanner keyboard = new Scanner(System.in);
   //Put your code here




}
```

Chapter 4
This chapter dealt with loops: while, for, and do while. This will mostly be short answer and programming.

Short Answer
Be able to explain the difference between do while and while. Also be able to convert a for into a while and visa versa. Finally, be able to figure out what a loop prints out.
   1. Explain the difference between a while and a do-while loop?
      The body of a do while will run at least once, and a while's body may never run at all.
   2. Convert this for statement into a while statement
```
for (int i = 0; i < 20; i++) {
   System.out.print( i + " ");
```

```
}
```

3. What does the following program display?

```
for (int i = 0; i < 10; i++) {
   System.out.print( 2*i + " " );
}
```

Programming Questions
Similar to the labs and examples. Also expect a question either on this exam or the
final that has you print out something like the triangle from the lab assignment.

1. Write a program where the user enters a number, and the program prints out right
   triangle where the number is the width of the base. The triangle's base must be a
   the top and then go to the points.
   Example: If the user enters 5 the program will print out
   *****
   ****
   ***
   **
   *

```
import java.util.Scanner;
public static void main(String[] args)
{
   Scanner keyboard = new Scanner(System.in);
   //Put your code here
```

```
}
```

2. Write a program where the user enters a number, and then the program adds **10** from that number until the number is greater than 50. It must print out the new value at each step.

Example if the user enters 14 the program will print out

```
14
24
34
44
```

```java
import java.util.Scanner;
public static void main(String[] args)
{
   Scanner keyboard = new Scanner(System.in);
   //Put your code here




}
```

Chapter 7
This chapter was on arrays, and will be mostly short answer and program questions. No sorting algorithms will be on this exam.
1. Write a program that finds the minimum and maximum number from an array and then subtracts the maximum from the minimum and prints the result out. The first line printed must be in the format, **MAXIMUM – MINIMUM = RESULT**
Example if the array given was {10,4,6,8,2} the program would print out

```
10 – 2 = 8
```

```java
public static void main (String[] args) {
   Scanner keyboard = new Scanner(System.in);
   int[] a = {10,4,6,8,2};
   //Put your code here
```

```
}
```

2. Write a program that multiplies all the number in an array and then prints out the result.
   Example if the array given is **{2,4,6,8}** the program would print
   384

```
public static void main (String[] args) {
   Scanner keyboard = new Scanner(System.in);
   int[] a = {2,4,6,8};
   //Put your code here
```

```
}
```

3. Write a program that goes through an array and then changes every instance of an even number into a 0, and then prints out the resulting array.
   Example if the array given is **{1,2,3,4,5,6,7,8}** the program will print out
   1 0 3 0 2 0 7 0

```
public static void main (String[] args) {
   Scanner keyboard = new Scanner(System.in);
   int[] a = {1,2,3,4,5,6,7,8};
   //Put your code here
```

```
}
```

4. Will this program cause an error? If so why does it cause an error? If not show
   what the program prints out?

```
int[] a = { 1, 2, 3, 4, 5 };
for (int i = 0; i <= 5; i++} {
    System.out.println( a[i] );
}
```